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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,765	04/30/2001	Akihiro Sanda	Q63763	9192

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EXAMINER

PRONE, JASON D

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding..

Office Action Summary

Application No.

09/843,765

Applicant(s)

SANDA ET AL.

Examiner

Jason Prone

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "saw-tooth shaped irregularity", of claim 18, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 11 lines 11-12, the term "grooves 20" should be replaced with "grooves 26".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 15 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. In regards to claim 15 line 2, the phrase "a severance plane" is unclear. It is uncertain if the severance plane of claim 15 is the same severance plane disclosed on line 9 of claim 1.

6. In regards to claim 18, the phrase "irregularities having one of saw-tooth shape" is unclear. From Figure 5, only undulating shaped irregularities are shown. It is uncertain what structure a saw-tooth shaped irregularity incorporates.

Claim Rejections - 35 USC § 102/103

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Annoura et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over Annoura et al. (See page 9 of this office action for examiner added reference numbers).

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The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Annoura et al. discloses the same invention including a drum-shaped rotary blade (16), a disk shaped rotary blade (64), that the rotary blade has a cutting edge (70), a first beveled surface facing the drum-shaped rotary blade and progressively spaced from the drum-shaped rotary blade toward the cutting edge (71), a second beveled surface facing the work piece and progressively spaced from the cutting edge away from the work piece (72), that a first distance of the first beveled surface up from the cutting edge along a severance plane perpendicular to a surface of the work piece is set to a value which ranges from $40\mu\text{m}$ to $200\mu\text{m}$ (K {Using the dimensions incorporated with blade C, the dimension Y as $25\mu\text{m}$ was used to calculate the distance K as roughly $87.5\mu\text{m}$ }) and a first angle of the first beveled surface from the severance plane is set to a value which ranges from 0.8° to 14° (M {Using a protractor, angle M is roughly 8° }), a second angle of the second beveled surface from the severance plane is set to a value which ranges from 65° to 85° (Column 13 lines 60-65), that the cutting edge is spaced apart from a severance plane (70), a means for rotating the drum-shaped blade in unison with the disk-shaped blade (24), that the drum-shaped rotary blade is disposed on a drum shaft (Fig. 1), and that the disk-shaped rotary blade is disposed on a disk

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shaft (Fig. 1). To the degree that it could be argued that the angle dimension, labeled by the examiner as "M", from Figure 15, may be inaccurate due to the Figure not being drawn to scale, it, therefore, would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Annoura et al. with a first angle of the first beveled surface from the severance plane is set to a value which ranges from 0.8° to 14° in order to cut at a desired angle or at a desired clearance to prevent an upper blade from interfering with the work piece.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annoura et al. in view of DeTorre. Annoura et al. discloses the invention including that the disk-shaped blade has a first clearance surface contiguous to the first beveled surface (73) but fails to disclose that the angle of the first clearance surface from the severance plane is set to a value which ranges from 2° to 5° and that the disk-shaped blade is made of cemented carbide. DeTorre teaches an angle of the first clearance surface from the severance plane that is set to a value which ranges from 2° to 5° (Column 3, lines 34-35 and Fig. 2) and that the disk-shaped blade is made of cemented carbide (Column 1, lines 34-41 and column 4, lines 23-29). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have

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provided Annoura et al. with the first clearance angle and that the blade is made from cemented carbide, as taught by DeTorre, to prevent the first clearance surface from interfering with the cut work piece and to provide the blade with increased hardness.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Annoura et al. in view of Munier et al. Annoura et al. discloses the invention including that the disk-shaped blade has a second clearance surface contiguous to the second beveled surface (74) but fails to disclose that the angle of the second clearance surface from the severance plane is set to a value which ranges from 20° to 45°. Munier et al. teaches an angle of the second clearance surface from the severance plane that is set to a value which ranges from 20° to 45° (Column 3 lines 39-44). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Annoura et al. with the second clearance angle, as taught by Munier et al., to prevent the second clearance surface from interfering with the cut work piece.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Annoura et al. in view of Paavola. Annoura et al. discloses the invention including that the second beveled surface and the second clearance surface are joined at a junction (75) but fails to disclose that the distance from the junction to the severance plane is set to a value which ranges from 0.2mm to 0.8mm. Paavola teaches a distance (14) from the junction to the severance plane is set to a value which ranges from 0.2mm to 0.8mm (Column 2, lines 30-33). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Annoura et al. with the distance, as taught by Paavola, to allow for a longer cutting surface.

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12. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annoura et al. in view of Takagi. Annoura et al. discloses the invention including a drum-shaped rotary blade (16), a disk shaped rotary blade (64), that the rotary blade has a cutting edge (70), a first beveled surface facing the drum-shaped rotary blade and progressively spaced from the drum-shaped rotary blade toward the cutting edge (71), and a second beveled surface facing the work piece and progressively spaced from the cutting edge away from the work piece (72) but fails to disclose that the disk-shaped rotary blade has irregularities along a circumference of the blade, that the irregularities have an irregularity quantity set to a value which ranges from 0.5 μm to 5 μm , that the irregularities have one of saw-tooth shaped and undulating shape, and that the irregularity quantity being a distance from a bottom to a top of one of the irregularities. Takagi teaches that it is old and well known that blades have irregularities in saw-tooth and undulating shapes (Column 2, lines 27-28). The examiner takes official notice that it is old and well known to make a surface as smooth as possible, therefore, it would have been obvious to employ manufacturing techniques to obtain a smoothness of the order claimed. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Annoura et al. with irregularities, as taught by Takagi, to provide the desired smoothness of the cutting apparatus.

Response to Arguments

13. Applicant's arguments with respect to claims 1-7 and 15-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Falk et al. and Lai et al. both disclose specific blade angles and lengths.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Prone whose telephone number is 703-605-4287. The examiner can normally be reached on 7:30-5:00, Mon - (every other) Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on 703-308-1082. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP
August 6, 2004


Allan N. Shoap
Supervisory Patent Examiner
Group 3700

C : $X = 2.5 \mu\text{m}$
 $Y = 2.5 \mu\text{m}$